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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,155	03/27/2001	Masato Hasegawa	50395-096	7094

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EXAMINER	
LEE, SHUN K	
ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 02/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,155	HASEGAWA ET AL.	
	Examiner	Art Unit	
	Shun Lee	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because it fails to comply with 37 CFR 1.84(u). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it is not a single paragraph within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

4. The use of the trademark COBAR (pg. 16, line 10) and COBAL (pg. 18, line 4; pg. 43, line 10) has been noted in this application. It should be capitalized (*e.g.*, COBAR) wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "said resin layer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 3, 5, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622).

In regard to claim **1**, Tower *et al.* disclose (Figs. 1 and 5) a ceramic infrared sensor, having a lens body (12), comprising ceramic (column 2, line 63 to column 3, line 7), a supporting part (16, 60), which supports said lens body (12), and a detection part (*i.e.*, optically active portion 32 of the electronic device 24), which detects the light that has been transmitted through said lens body (12). The ceramic infrared sensor of Tower *et al.* lacks that a pigment that shields visible light is contained in said lens body. Grossinger *et al.* teach (column 2, lines 1-9) it is known in the art to provide the lens with pigment particles that absorbs and diffuses (*i.e.*, shields) visible light in order to counteract visible light heating. Therefore it would have been obvious to one having ordinary skill in the art to provide the lens body in the ceramic infrared sensor of Tower *et al.* with a pigment that shields visible light in order to counteract visible light heating.

In regard to claims **3** and **5** which are dependent on claim 1, the ceramic infrared sensor of Tower *et al.* lacks that the linear transmittance of light of said lens body is 50% or more at 3 to 5 μm wavelength or 8 to 12 μm wavelength. Tower *et al.* also disclose (column 2, lines 63-66) that the lens body is formed from any suitable ceramic or glass such that that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation. Therefore it would have been obvious to one having ordinary skill in the art that the lens body in the ceramic infrared sensor of Tower *et al.* has a linear light transmittance of 50% or more at a desired infrared wavelength (*e.g.*, 3 to 5 μm wavelength or 8 to 12 μm wavelength), in order to pass a desired infrared wavelength light through the lens body with minimal distortion or attenuation.

In regard to claim **6** which is dependent on claim 5, Tower *et al.* also disclose (column 2, line 63 to column 3, line 7) that the main component of said ceramic is spinel ($MgAl_2O_4$).

In regard to claim **9** which is dependent on claim 1, Tower *et al.* also disclose (column 3, lines 35-45, column 4, lines 44-53) that said supporting part (16, 60) is comprised of metal.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622) as applied to claim 3 above, and further in view of Carnall, Jr. *et al.* (US 3,131,238).

In regard to claim **4** which is dependent on claim 3, the ceramic infrared sensor of Tower *et al.* lacks that the main component of said ceramic is zinc sulfide (ZnS). Tower *et al.* also disclose (column 2, lines 63-66) that the lens body is formed from any

suitable ceramic or glass such that that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation. Zinc sulfide ceramic lenses are well known in the art. For example, Carnall, Jr. *et al.* teach (column 5, line 50 to column 6, line 62) a 1.6 mm thick zinc sulfide infrared optical element have a linear light transmittance of 50% or more (*e.g.*, 75% at 8 μm wavelength). Therefore it would have been obvious to one having ordinary skill in the art to provide a zinc sulfide lens body in the ceramic infrared sensor of Tower *et al.*, in order to pass a desired infrared wavelength (*e.g.*, 8 μm wavelength) light through the lens body.

12. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622) and Scherber *et al.* (US 4,708,419).

In regard to claims **2** and **10**, Tower *et al.* in view of Grossinger *et al.* is applied as in claim 1 above. The modified ceramic infrared sensor of Tower *et al.* lacks a resin layer (*e.g.*, a polyethylene layer) that covers at least the light receiving surface of the ceramic part of the lens body (12). Scherber *et al.* teach (column 3, lines 3-58) to provide a polyethylene layer overlying infrared components in order to protect the infrared components. Therefore it would have been obvious to one having ordinary skill in the art to provide a polyethylene layer overlying the lens body in the modified ceramic infrared sensor of Tower *et al.*, in order to protect the lens body as taught by Scherber *et al.*

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622) and

Scherber *et al.* (US 4,708,419) as applied to claim 10 above, and further in view of Silvestrini *et al.* (US 4,323,619).

In regard to claim **11** which is dependent on claim 10, the modified ceramic infrared sensor of Tower *et al.* lacks that said polyethylene is high-density polyethylene. The infrared transmission of high-density polyethylene is well known in the art. For example, Silvestrini *et al.* teach (column 3, lines 18-27) that a 100 μm thick high-density polyethylene film has an absorption of between 10% to 15% in the 8-13 μm range. Therefore it would have been obvious to one having ordinary skill in the art to provide a high-density polyethylene layer overlying the lens body in the modified ceramic infrared sensor of Tower *et al.*, in order to protect the lens body while minimizing infrared attenuation.

14. Claims 1, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622).

In regard to claim **1**, Castleman discloses (Figs. 8 and 9) a ceramic infrared sensor, having a lens body (232), comprising ceramic (*i.e.*, sapphire; column 13, lines 36-47), a supporting part (230), which supports said lens body (232), and a detection part (236), which detects the light that has been transmitted through said lens body (232). The ceramic infrared sensor of Castleman lacks a pigment that shields visible light is contained in the lens body. Grossinger *et al.* teach (column 2, lines 1-9) it is known in the art to provide the lens with pigment particles that absorbs and diffuses (*i.e.*, shields) visible light in order to counteract visible light heating. Therefore it would have been obvious to one having ordinary skill in the art to provide the lens body in the

ceramic infrared sensor of Castleman with a pigment that shields visible light in order to counteract visible light heating.

In regard to claim **7** (which is dependent on claim 1) and claim **8** (which is dependent on claim 7 in so far as understood), Castleman also discloses (column 13, lines 11-20 and 36-47) that said supporting part is comprised of resin (*i.e.*, plastic housing).

15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622) as applied to claim 1 above, and further in view of Adachi *et al.* (US 4,302,674).

In regard to claim **12** which is dependent on claim 1, the ceramic infrared sensor of Castleman lacks that said supporting part includes a cylindrical part, which is formed between the portion of said lens body that transmits light and said detection part. Adachi *et al.* teach (column 5, lines 46-58) to provide a cylindrical part in order to receive only substantially perpendicular radiation relative to the detection part. Therefore it would have been obvious to one having ordinary skill in the art to provide a cylindrical part between the lens body and the detection part in the ceramic infrared sensor of Castleman, in order to receive only substantially perpendicular radiation relative to the detection part as taught by Adachi *et al.*

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 5,702,654 (Chen *et al.*) discloses (column 1, lines 23-25) that sapphire is a ceramic material.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SL
February 12, 2003

CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878